REMARKS

In the patent application, claims 1-17 are pending. In the office action, claims 1-8, 10 and 12-17 are rejected and claims 9 and 11 are allowed.

At section 1, the drawings are objected to. The Examiner states that Figure 2 should be designated by a legend such as "Prior Art".

It is respectfully submitted that Figure 2 is obtained from a co-pending application Serial No. 09/612,207, which is assigned to the same assignee of the present invention (p.1, lines 5-7; p.6, lines 16-21). At the time of filing the instant application, Figure 2 had not been published or made public. Thus, Figure 2 is not prior art as far as the instant application is concerned. Accordingly, Figure 2 should not be marked as "Prior Art" as suggested by the Examiner.

At section 2, the Examiner states that the full name of each inventor has not been set forth.

It is respectfully submitted, the two inventors of the present invention are *Ye Wang* (*Ye* is the first name and *Wang* is the last name) and *Miikka Vilermo* (*Miikka* is the first name and *Vilermo* is the last name), as shown in the updated filing receipt mailed September 17, 2002.

The Examiner also states that the oath or declaration is not signed by *Mauri Vaananen* and *Leonid Yaroslavsky*.

It is respectfully submitted that although the names of *Mauri Vaananen* and *Leonid Yaroslavsky* appear on the cover sheet of the patent application, *Mauri Vaananen* and *Leonid Yaroslavsky* are not named inventors. The names of *Mauri Vaananen* and *Leonid Yaroslavsky* are not listed in the as-filed Declaration and Power of Attorney, a copy of which is attached herein.

At section 3, claims 1-8, 10 and 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Miyamori et al.* (U.S. Patent No. 5,737,720, hereafter referred to as *Miyamori*)

in view of *Chen et al* ("Video Compression Using Integer DCT" Image Processing, 2000, Proceeding 2000 International Conference, vol.2, pp. 844-845, hereafter referred to as *Chen*).

In rejecting claims 1 and 10, the Examiner states that *Miyamori* teaches low bit rate multichannel audio coding methods using non-linear adaptive bit allocation. Specifically, *Miyamori* teaches coding audio signals in a sound system having a plurality of sound channels for providing M sets of audio signals, wherein a plurality of intra-channel signal redundancy removal devices are used to reduce the audio signal for providing first signals indicative of the reduced audio signals (col.7, line 8 - col.9, line 60).

It is respectfully submitted that *Miyamori* discloses a low-bit rate encoder for compression-encoding digital audio signals of a plurality of channels making use of both the property of the audio signal and the hearing sense of the human being. To that end the encoder includes an energy detecting section for detecting energies of the digital audio signals in the channels, and a bit allocation module for determining bit allocation amounts to the respective channels based on the detected results. As such, the relationship between the energy and the bit allocation amount represents a non-linear characteristic so as to eliminate the redundancy of bit allocation amount in the compression encoding of the multi-channel system (*See Abstract)*. Col. 7, line 8 to col. 8, line 40 of *Miyamori* describes the encoder shown in Figure 1. In particular, the encoder comprises a plurality of amplitude information detection circuits 200, operatively connected to the plurality of channels, for detecting the energies of the digital audio signals, or the peak values of amplitude information from quantized signals of respective channels for every period corresponding to the number of samples of audio data processed at a time (col.7, lines 19-32). Based on the detection results, bit allocating determining circuits 500 allocate the bit amounts to respective encoding elements 400 for every respective channel from peak values of every respective channel (col.7, line 33-38). As such, intra-channel redundancy may be removed. The delay lines 300 are used to delay the arrival at the encoding elements 400 of the audio signals from the sampling & quantization elements 100, so that the allocated bit amounts conveyed to the encoding elements match the period in which the energies are detected by the

amplitude information detection circuits. No inter-channel redundancy removal is disclosed or even suggested here.

Col. 8, line 41 - col. 9, line 44 describes an ATRAC system, which makes use of the hearing sense characteristics of the human being. The ATRAC system is implemented in the encoding elements 400 for compression-encoding using a plurality of MDCT circuits. Although this compression-encoding technique is useful in compressing audio signals of stereo 2 channels at a fixed bit rate by making use of the hearing sense characteristics, the described technique and encoder do not suggest removal of inter-channel signal redundancy.

Accordingly, the Examiner admits that *Miyamori* does not specifically teach implementation of reducing the inter-channel signal redundancy in the second signals, which are indicative of audio data of integers. The Examiner further states that data reduction of integers is well known in the art. However, the Examiner fails to address the issue of inter-channel signal redundancy.

The Examiner cites *Chen* for teaching integer discrete cosine transform (IntDCT) in an MPEG coder. It is respectfully submitted that IntDCT is used in the claimed invention to remove intra-channel signal redundancy. However, *Chen* does not disclose or even suggest inter-channel signal redundancy removal.

Applicant has amended claims 1 and 10. As amended, claims 1 and 10 include the limitation that at least two of the sound channels are operatively engaged so as to reduce the inter-channel redundancy in the second signals (audio data of integers) in said at least two channels, and that the inter-channel redundancy removal means is disposed separately from the intra-channel redundancy removal devices. In contrast, *Miyamori* does not disclose or even suggest that the MDCT modules are operatively engaging any two channels. Furthermore, *Miyamori* does not disclose or even suggest any inter-channel redundancy removal devices disposed separately from the MDCT modules.

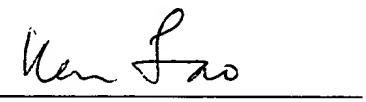
For the foregoing reasons, it is respectfully submitted that claims 1 and 10 are distinguishable over the cited *Miyamori* and *Chen* references.

As for claims 2-8 and 12-17, they are dependent from claims 1 and 10 and recite features not recited in claims 1 and 10. For reasons regarding claims 1 and 10 above, it is respectfully submitted that claims 2-8 and 12-17 are also distinguishable over the cited *Miyamori* and *Chen* references.

CONCLUSION

Claims 1-8, 10 and 12-17 are distinguishable over the cited *Miyamori* and *Chen* references. Claims 9 and 11 have been allowed. Early allowance of claims 1-8, 10 and 12-17 is earnestly solicited.

Respectfully submitted,



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